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MEROUAN, ABDERRAHIM				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/572,755

**Applicant(s)**

HESS, RAUL

**Examiner**

ABDERRAHIM MEROUAN

**Art Unit**

2628

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 March 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 11 and 13-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11 and 13-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 March 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S508)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made

2. Claims 11, and 13-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hartel et al (US PATENT 6337749 B1), hereinafter referred as Hartel, in view of Williams (U.S. Patent 6300595 B1) hereinafter referred as Williams.

3. As per claim 11, Hartel discloses; A process for the multi-layered removal of material (Hartel, Column 4, lines 39-43) from a work piece having an arbitrary shaped three-dimensional surface (Hartel, Column 3, lines 2 -11" the grooves and folds represent an arbitrary three-dimensional surface") comprising the steps of:  
providing a work piece having a three-dimensional arbitrary shaped surface (Hartel, Column 3, lines 2 -11" the grooves and folds represent an arbitrary three-dimensional surface");  
approximating the surface of the work piece (Hartel, Column 2, lines 12-16) having the arbitrary shaped three-dimensional surface (Hartel, Column 3, lines 2-6) through a plurality of polygons (Hartel, Column 2, lines 48-52) in the form of superposed polygon networks (Hartel, Column 2,

lines 58-62); wherein three-dimensional corners of each polygon are in one plane (Hartel, Column 4, lines 39-43)

removing material in a point-wise manner from each work area by the laser, thereby generating a surface structure on the three-dimensional surface (Hartel, Column 4, lines 39-46).

assigning each polygon of the polygon network to a work area (Hartel, Column 3, lines 50 to 58),

Hartel doesn't disclose: determining work areas of the workpiece to be machined on the three-dimensional surface of the work piece through the focal cuboid of a laser scanner . However,

William discloses: determining work areas of the workpiece to be machined on the three-dimensional surface of the work piece through the focal cuboid of a laser scanner (William, Column 3, lines 18-43);

Hartel doesn't disclose: each polygon has the exact distance of the focal distance to the laser optics and vertical to the direction of a laser beam in a central position of deflection mirrors of the scanner and entirely within the focal cuboid, However, William discloses: each polygon has the exact distance of the focal distance to the laser optics and vertical to the direction of a laser beam in a central position of deflection mirrors of the scanner and entirely within the focal cuboid (William, Fig 4, Fig 9, lines 18-43, and Column 5, lines 41-47 " the laser is engraving in circles or rings with the same distance..." );

It would have been obvious to one skilled in the art, at the time of the Applicant's invention, to incorporate the teachings of William into the process taught by Hartel, because through such incorporation would produce structure on a workpiece with high quality.

4. As per claim 13, Hartel discloses: The process according to claim 11, Hartel doesn't disclose: the surface structure is described by at least one grey level bitmap. However, William discloses: the surface structure is described by at least one grey level bitmap (William, Figure 2 and Column 2, lines 25 -30).

5. As per claim 14, Hartel discloses: The process according to claim 13, Hartel doesn't disclose: the grey level bitmap includes image spots of different grey levels or different color levels. However, William discloses: the grey level bitmap includes image spots of different grey levels or different color levels (William, Column 2, lines 19-23).

6. As per claim 15, Hartel discloses: The process according to claim 14, Hartel doesn't disclose: a depth of the material removal is determined by one of, a brightness of the grey level corresponding to each image spot of the grey level bit map or an intensity of the color level. However, William discloses; a depth of the material removal is determined by one of, a brightness of the grey level corresponding to each image spot of the grey level bit map or an intensity of the color level (William, Column 7, lines 15-20).

7. As per claim 16, Hartel discloses: The process according to claim 15; Hartel doesn't disclose: removal of the material is carried out in a number of layers corresponding to a value of the grey level. William discloses: removal of the material is carried out in a number of layers corresponding to a value of the grey level ( William, Column 8, lines 41-45).

8. As per claim 17, Hartel discloses: The process; each of the layers is associated with its own polygon network (Hartel, Column 2, lines 58-60).

9. As per claim 18, Hartel discloses: The process, wherein each polygon to be manipulated in each layer does not have a border portion in common with a previously manipulated polygon (Hartel, Column 2, lines 61 and 62).

10. As per claim 19, Hartel discloses: A process for the multi-layered removal of material (Hartel, Column 4, lines 39-43) from a three-dimensional surface of any shape (Hartel, Column 3, lines 2 to 6) comprising the steps of:

providing a work piece having a three-dimensional arbitrary shaped surface (Hartel, Column 3, lines 2 -11" the grooves and folds represent an arbitrary three-dimensional surface":

generating a three-dimensional computer model (Hartel, Column 2, lines 12-16) of the three-dimensional surface of the work piece (Hartel, Column 3, lines 2-6) described by a first polygon network (Hartel, Column 2, lines 48-52);

determining work areas to be manipulated for removal of material on the three-dimensional surface of the work piece by means of locating a work area (Hartel, Column 3, lines 50-52) in the focal square of a removal agent (Hartel, Column 1, lines 21-26), which is a laser (Hartel, Column 1, lines 21-26); wherein the work areas comprise single layers (Hartel, Column 4, lines 39-41), each of the layers describing a polygon network (Hartel, Column 4, lines 39-40), such that the sum of the work areas correspond to the surface of the workpiece (Hartel, Column 4, lines 22 -

27) and the sum of the layers correspond to the surface structure of the work piece (Hartel, Column 4, lines 39-43);

-wherein the surface of the work piece is approximated through superposing second polygon networks having a plurality of polygons and wherein the superposed polygon networks are offset to each other (Hartel, Column 2, lines 56-60);

- assigning each polygon of each polygon network within the work area (Hartel, Column 3, lines 50-58), with a grey level bitmap from a parallel projection of the master texture bitmap onto the polygon within the work area (Hartel, Column 2, lines 28-34); and removing the material by means of the laser in each layer in correspondence to the values of the grey level bitmap (Hartel, Column 2, lines 23-28)

Hartel doesn't disclose: providing one or more master texture bitmaps defining two-dimensional spaces; wherein three-dimensional corners of the polygons of the first polygon network correspond to two-dimensional image spots in one or more of the master texture bitmap; thereby translating the polygons into the two-dimensional space of the master texture bitmap; wherein the master texture bitmap comprises a plurality of image spots; each of which is defined by a grey level value corresponding to the material to be removed. However, William discloses; providing one or more master texture bitmaps defining two-dimensional spaces (William, Column 2, lines 35-40); wherein three-dimensional corners of the polygons of the first polygon network correspond to two-dimensional image spots in one or more of the master texture bitmap (William, Column 2, lines 51-57); thereby translating the polygons into the two-dimensional space of the master texture bitmap (William, Column 3, lines 1-2); wherein the master texture bitmap comprises a plurality of image spots(William, Column 6, lines 49-51); each of which is

defined by a grey level value corresponding to the material to be removed (William, Column 7, lines 7-10).

11. As per claim 20, Hartel discloses: The process, wherein the original computer model is derived from the description of the work piece by CAD-(spline) -surfaces, which result in an original polygon network (Hartel, Column 1, lines 64-67 and Column 2, lines 1-2).

12. As per claim 21, Hartel discloses: The process according to claim 19, Hartel doesn't disclose: wherein the brightness values of the grey level of the grey level bitmaps either before or during manipulation of the surface of the workpiece are computed back to the master texture bitmap. However, William discloses: wherein the brightness values of the grey level of the grey level bitmaps (William, Column 4, lines 23-28); either before or during manipulation of the surface of the workpiece are computed back to the master texture bitmap (William, Column 3, lines 64-67 and Column 7, lines 1-21).

***Response to Arguments***

13. Applicant's arguments directed to claims 11, 13-21 have been fully considered but they are not persuasive.



14. In response to applicant's argument for claim 1, applicant argues on page 6 that the prior art doesn't disclose: "... a surface structure on a three-dimensional work piece or object, ...". Examiner respectfully disagrees with the argument because Hartel stated that: "Because this signal component obviously also is depth signal, recesses shaped like grooves are produced by this signal component in the workpiece surface, where the grooves may corresponds for instance to the folds of natural leather. Appropriately the cross-sectional contours of the particular line segments are predetermined individually or as whole and/or are selected at random from a list of predetermined cross-sectional contours. In this manner small or large folds of natural leather may be imitated." (see Hartel, Column 3, lines 2 -11 "the grooves and folds represent an arbitrary three-dimensional surface").

15. In response to applicant's argument for claim 19, applicant argues on page 9 that the prior art doesn't disclose: "... superposed polygon networks...". Examiner respectfully disagrees with the argument because Hartel stated that: "Accordingly, it is especially appropriate to form the cell boundaries so that they be irregularly and preferably randomly increasing farther away from the cell nuclei. At least two iteration stages may be preset and thereby cell structures of different sizes may be superposed" (Hartel, Column 2, lines 56-60)

### ***Conclusion***

16. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ABDERRAHIM MEROUAN whose telephone number is (571)270-5254. The examiner can normally be reached on Monday to Friday 7:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Xiao Wu can be reached on (571) 272-7761. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Abderrahim Merouan/

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Examiner, Art Unit 2628

/XIAO M. WU/

Supervisory Patent Examiner, Art Unit 2628